

REMARKS

The following remarks are responsive to the February 10, 2009 *Office Action*. Claims 1-14, 16-19, 52, 53, 57-63, and 65-95 were considered and rejected by the Examiner. Claims 1, 3, 10, 18, 19, 59, 60, 62, 65, 66, 68-72, 74-78, 80, 84, 85, and 95 have been amended and Claims 2, 57, and 83 have been canceled. Applicants request the Examiner to consider the above-listed claim set in light of the following remarks:

Declaration of Edward Socci

Filed herewith is a Declaration of Edward Socci, who has worked in the plastics packaging industry for 14 years. The Declaration discusses the results of testing the CO₂ transmission rate (CTR) and O₂ transmission rate (OTR) of coated articles. As described in the Declaration, the CTR and OTR were determined for uncoated polyethylene terephthalate (PET) bottles, PET bottles coated with Oxybloc 670 C 1322-R, and PET bottles coated with Oxybloc 670 C 1300-R. As explained in the Declaration, both Oxybloc 670 C 1322-R and Oxybloc 670 C 1300-R include a thermoplastic polyhydroxyamino ether (PHAE) epoxy-amine polymer in combination with a blend of phosphoric and lactic acids. Oxybloc 670 C 1322-R has an acid content of 1.45% phosphoric acid and 1.95% lactic acid, for a total acid content of 3.40%. Oxybloc 670 C 1300-R has an acid content of 4.25% phosphoric acid and 0.75% lactic acid, for a total acid content of 5.00%.

Using the CTR and OTR data, the CO₂ and O₂ permeability of these articles were calculated. The CO₂ and O₂ permeability data presented in the Declaration can be summarized as follows:

Coating	CO ₂ Permeability (cc-mil/ 100in ² -atm-day)	O ₂ Permeability (cc-mil/ 100in ² -atm-day)	CO ₂ Coating BIF	O ₂ Coating BIF
None (control)	12.55	3.83-3.88	1	1
Oxybloc 670 C 1322-R	0.093	0.068-0.237	135.2	16.3-56.4
Oxybloc 670 C 1300-R	0.046	0.034-0.102	272.2	37.9-113.6

Oxybloc 670 C 1300-R, which has more phosphoric acid than lactic acid, demonstrated reduced permeability to CO₂ and O₂ as compared to Oxybloc 670 C 1322-R, which has more lactic acid than phosphoric acid. The coating barrier improvement factor (BIF), which reflects the improvement in barrier capability of the coating in comparison with an uncoated article, was

significantly greater for Oxybloc 670 C 1300-R, with respect to both O₂ and CO₂ transmission. For example, the Oxybloc 670 C 1300-R CO₂ coating BIF was 272.2, meaning that the permeability of this coating to CO₂ was found to be 272.2 times lower than that of an uncoated article. Notably, the CO₂ coating BIF for Oxybloc 670 C 1300-R is over two times greater than that of Oxybloc 670 C 1322-R. It has thus been unexpectedly discovered that gas barrier properties are remarkably increased through the use of phosphoric acid.

Claim Objections

In paragraph 1 of the *Office Action*, the Examiner objected to the dependencies of Claims 10 and 11. Without acquiescing to the objection, Applicant has amended Claim 10.

In paragraph 2 of the *Office Action*, the Examiner objected to the dependency of Claim 18. Without acquiescing to the objection, Claim 18 has been amended.

Claim Rejections

Nonstatutory Double Patenting

In paragraph 4 of the *Office Action*, the Examiner rejected Claims 1-9, 12, 14, 16-18, 52, 53, 57-60, 62, and 63 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 31-38 of U.S. Patent No. 6,676,883 ("the '883 patent") in view of U.S. Patent No. 6,350,796 to Dworak et al. ("Dworak") and further in view of U.S. Patent No. 4,762,903 to Geist et al. ("Geist"), for the reasons set forth in paragraph 4 of the *Office Action* mailed on 4/1/2008.

Applicant's independent Claim 1 is patentably distinguishable from the cited claims of the '883 patent, as the claims of the '883 patent do not recite an "acid salt which is the reaction product of a thermoplastic epoxy polymer and phosphoric acid," as presently claimed herein. Similarly, independent Claim 52 is patentably distinguishable from the cited claims of the '883 patent, as the '883 patent does not disclose "applying an aqueous solution or dispersion comprising an acid salt produced by the reaction of a first thermoplastic epoxy resin and phosphoric acid," as presently claimed herein. As explained below, even in view of Dworak and Geist, the foregoing claim limitations present a non-obvious distinction over the '883 patent.

As to Dworak, the Examiner acknowledges, "Dworak et al fails to teach that a phosphoric acid is also suitable for neutralization of amino epoxy resins," as required by Claims 1 and 52 as presented herein. Geist teaches "water-dilutable binders for cationic electrocoating finishes, which binders contain latent primary amino groups and are based on reaction products of epoxy

resins and polyamines . . .” (Column1, Lines 7-10). Geist discloses, “Water-dilutability of the binders is achieved by neutralization of the amino groups with water-soluble acids (for example formic acid, acetic acid or phosphoric acid)” (5:31-34). The Examiner states, “It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used phosphoric acid in Dworak et al/the cited prior art with the expectation of providing the desired water-dilutability of amino epoxy resins since Geist et al teach that water-dilutability of amino epoxy resins binders may be achieved by neutralization of the amino groups with water-soluble acids such as *formic acid*, *acetic acid* or phosphoric acid, and Dworak et al does not limit its teaching to organic acids” (emphasis in original).

Applicant respectfully disagrees and traverses this rejection. While a person of ordinary skill in the art may have used phosphoric acid in the cited art with the expectation of providing water-dilutability of amino epoxy resins as taught by Geist, nothing in the cited prior art would lead a person of ordinary skill in the art to have selected phosphoric acid in particular, as recited in the claims. As demonstrated in the Declaration, Applicant has unexpectedly discovered that gas barrier properties are remarkably increased through the use of this acid in particular. These findings demonstrate that the increased gas barrier properties resulting from the use of phosphoric acid in combination with the cited art would not have been predictable or expected. Applicant thus asserts that independent Claims 1 and 52 are non-obvious over the cited references.

Claims 3-9, 12, 14, 16-18, 53, 58-60, 62 and 63 depend from Claims 1 and 52 and further define what is claimed in the independent Claims 1 and 52. Claims 3-9, 12, 14, 16-18, 53, 58-60, 62, and 63 are patentably distinguished over the cited claims of the ‘883 patent, Dworak, and Geist for at least the reasons set forth above with respect to Claim 1 and 52, as well as for novel and non-obvious features recited therein.

In paragraph 5 of the *Office Action*, the Examiner rejected Claims 68-71, 74, 75, and 77 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 31-38 of U.S. Patent No. 6,676,883 (“the ‘883 patent”) in view of U.S. Patent No. 6,350,796 to Dworak et al. (“Dworak”), further in view of U.S. Patent No. 4,762,903 to Geist et al. (“Geist”), and further in view of U.S. Patent No. 6,489,387 to Mallya et al. (“Mallya”), for the reasons of record set forth in paragraph 14 of the *Office Action* mailed on 8/8/2007.

Applicant's independent Claims 1 and 52 are patentably distinguishable from the cited claims of the '883 patent, Dworak, and Geist for the reasons stated above. Thus, dependent Claims 68-71, 74, 75, and 77 are also patentably distinguishable at least for the reasons stated above with respect to Claims 1 and 52.

35 USC § 103

Paragraphs 7-18

In paragraphs 7-18 of the Office Action, the Examiner rejected all of the presently pending claims under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,393,106 to Maruhashi ("Maruhashi") in view of U.S. Patent No. 5,472,753 to Farha ("Farha"), further in view of U.S. Patent No. 6,872,802 to Noda ("Noda"), and further in view of some or all of Dworak, Geist, U.S. Patent No. 4,573,429 to Cobbs, Jr. et al. ("Cobbs"), U.S. Patent No. 5,079,034 to Miyake et al. ("Miyake"), U.S. Patent No. 4,505,951 to Kennedy ("Kennedy"), and U.S. Patent No. 4,499,262 to Fagerburg et al. ("Fagerburg"), for the reasons of record set forth in the *Office Actions* mailed on 4/1/2008 and 8/8/2007.

In a previous response, Applicant argued that many of these references were not properly combinable. Applicant maintains that the references do not present a prima facie case of obviousness against the then-pending claims and reserve the right to present those arguments again in later proceedings for this application or other continuing and/or related applications.

Claims 1, 52, and 80

In setting forth the various rejections, the Examiner implicitly acknowledged that the main references, Maruhashi, Farha, and Noda, fail to disclose many of the features recited in the independent claims. In particular, amongst the many deficiencies of these references, none of these references disclose the phosphoric acid recited in the present claims. The secondary references fail to remedy this deficiency. Dworak discloses, "In the case of the cationically modified epoxy resins, dilutability in water is achieved by neutralizing some or all of the basic groups of the epoxy-amine adduct with acids, such as formic acid, acetic acid or lactic acid, for example" (1:40-43). As to Dworak, the Examiner acknowledges, "Dworak et al fails to teach that a phosphoric acid is also suitable for neutralization of amino epoxy resins," as required by Claims 1, 52, and 80 as presented herein.

Geist teaches "water-dilutable binders for cationic electrocoating finishes, which binders contain latent primary amino groups and are based on reaction products of epoxy resins and

polyamines . . .” (1:7-10). Geist discloses, “Water-dilutability of the binders is achieved by neutralization of the amino groups with water-soluble acids (for example formic acid, acetic acid or phosphoric acid)” (5:31-34). The Examiner states, “It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used phosphoric acid in Dworak et al/the cited prior art with the expectation of providing the desired water-dilutability of amino epoxy resins since Geist et al teach that water-dilutability of amino epoxy resins binders may be achieved by neutralization of the amino groups with water-soluble acids such as *formic acid*, *acetic acid* or phosphoric acid, and Dworak et al does not limit its teaching to organic acids” (emphasis in original).

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Claims 3-6, 7-14, 16-17, 19, and 58-72 depend from Claim 1, Claims 53, and 73-79 depend from Claim 52, and Claims 81, 82, and 84-95 depend from Claim 80. These dependent claims are patentably distinguished over the cited references for at least the reasons set forth above with respect to Claims 1, 52, and 80, as well as for other novel and non-obvious features recited therein.

No Disclaimers or Disavowals

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, the Applicants are not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. The Applicants reserve the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior

prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that the Applicants have made any disclaimers or disavowals of any subject matter supported by the present application.

Co-Pending Applications of Assignee

Applicant wishes to draw the Examiner's attention to the following co-pending applications of the present application's assignee.

Serial Number	Title	Filed
11/772,756	DIP, SPRAY, AND FLOW COATING PROCESS FOR FORMING COATED ARTICLES	Jul. 2, 2007
11/772,737	DIP, SPRAY, AND FLOW COATING PROCESS FOR FORMING COATED ARTICLES	Jul. 2, 2007
11/772,717	DIP, SPRAY, AND FLOW COATING PROCESS FOR FORMING COATED ARTICLES	Jul. 2, 2007

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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